

What is claimed is:

1. At least two fluorophores for use in fluorescence correlation spectroscopy, characterized in that the fluorophores have substantially the same excitation wavelength and different emission wavelengths.
2. The fluorophores of claim 1, wherein one of the fluorophores has a larger Stokes shift than the other.
3. The fluorophores of claim 2, characterized in that a relative Stokes shift difference between the fluorophores is greater than about 40nm.
4. The fluorophores of claim 3, characterized in that the relative Stokes shift difference between the fluorophores is greater than about 100nm.
5. The fluorophores of any one of the preceding claims, characterized in that at least one of the fluorophores comprises a nanocrystal or a quantum dot.
6. The fluorophores of any one of the preceding claims, characterized in that at least one of the fluorophores comprises a fluorescent energy transfer dye.
7. The fluorophores of any one of the preceding claims, characterized in that at least one of the fluorophores comprises a standard organic dye.

8. The fluorophores of any one of the preceding claims, characterized in that the fluorophores comprise fluorescein and quantum red.

9. The fluorophores of any one of the preceding claims, characterized in that the fluorophores comprise fluorescein and tetramethylrhodamine.

10. The fluorophores of any one of the preceding claims, characterized in that the fluorophores comprise fluorescein and semiconductor nanocrystals.

11. The fluorophores of any one of the preceding claims, characterized in that the fluorophores comprise 3 or more fluorophores.

12. A screening method for at least two binding partners, which comprises:

labeling each binding partner with a fluorophore, characterized in that the at least two fluorophores have substantially the same excitation wavelength and different emission wavelengths.

13. The method of claim 12, wherein one of the fluorophores has as a larger Stokes shift than the other.

14. The method of claim 13, characterized in that a relative Stokes shift difference between the fluorophores is greater than about 50nm.

15. The method of claim 14, characterized in that the relative Stokes shift difference between the fluorophores is greater than about 100nm.

16. The method of any one of claims 12 to 15, characterized in that at least one of the fluorophores comprises a nanocrystal or a quantum dot.

17. The method of any one of claims 12 to 16, characterized in that at least one of the fluorophores comprises a fluorescent energy transfer dye.

18. The method of any one of claims 12 to 17, characterized in that at least one of the fluorophores comprises a standard organic dye.

19. The method of any one of claims 12 to 18, characterized in that the fluorophores comprise fluorescein and quantum red.

20. The method of any one of claims 12 to 19, characterized in that the fluorophores comprise fluorescein and tetramethylrhodamine.

21. The method of any one of claims 12 to 20, characterized in that the fluorophores comprise fluorescein and semiconductor nanocrystals.

22. The method of any one of the preceding claims, characterized in that the fluorophores comprise 3 or more fluorophores.

23. The method of any one of claims 12 to 22, characterized in that the binding partners have a mass difference of less than a factor of 10.

24. The method of claim 23, characterized in that the binding partners have a mass difference of less than a factor of 8.

25. The method of any one of claims 12 to 24, characterized in that the binding partners comprise biotin and streptavidin.

26. A biological screening apparatus, comprising:

a single laser beam source;

a optical system for directing the single laser beam onto a sample and for directing fluorescence emitted from the sample towards a spectrograph unit;

the spectrograph unit separating the emitted fluorescence by wavelength;
and

a detector unit for detection of the fluorescence at respective different wavelengths.